

REMARKS

The Office Action mailed September 29, 2004 has been reviewed and the comments of the Patent and Trademark Office have been considered. Claims 1-14 were pending in the application. None of the pending claims have been amended or cancelled while new claims 15-18 have been added. Therefore, claims 1-18 are pending in the application and reconsideration is respectfully requested.

This amendment adds claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, are presented, with an appropriate defined status identifier.

Applicants sincerely thank the examiner for indicating that claim 9 contains allowable subject matter.

In the Office Action, claims 1-8 and 10-14 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,319,930 to Shinzawa et al. (hereafter "Shinzawa"). Applicants respectively traverse this rejection for at least the following reasons.

Each of the independent claims 1, 13, and 14 recite that when the deposition amount of particulate matter is more than a first reference amount, a controller immediately starts a (first) filter regeneration control, if the detected engine running point is not in the low load region. Therefore, when the detected engine running point is not in the low load region, the controller starts a (first) filter regeneration control at the first reference amount of the deposited particulate matter, as shown, for example, in the processes S1, S2, S3 and S11 of FIG. 2 of the application.

On the other hand, if the detected engine running point is in the low load region, the claimed controller starts a (second) filter regeneration control at/above a second reference amount of the deposited particulate matter which is larger than the first reference amount, as shown, for example, in the processes S1-S8 of FIG. 2. Therefore, the start timing (based on the start particulate matter amount) of the filter regeneration varies depends on the engine running point, especially depending on whether or not the engine running point is in the low load region. The start timing of the filter regeneration is delayed in the low load region from the start timing in the normal/high load region. Therefore, the number of times of the filter regeneration (raising of the exhaust gas temperature), which impairs fuel consumption

performance, is reduced in the low load region. See paragraph [0033] for example. In other words, setting the reference amount in two steps reduces the number of times of filter regeneration in the low load region.

In sharp contrast, Shinzawa does not disclose the feature corresponding to the claimed second reference amount and does not disclose setting starting the filter regeneration control two steps (in which one of the two steps is delayed in time). Accordingly, in Shinzawa, a filter regeneration in steps 1S9, 1S10, 1S11, or 1S12 (in Figs 8A-C) is started at the same start time (i.e., when the regeneration time has been determined in the step 1S2). Thus, the start time of filter regeneration is the same, independent of the engine running point or operation range of the engine. This is quite different from the claimed feature (in the pending independent claims) in which the start timing of the filter regeneration strongly depends on the engine running point and has a different start (delayed) start time when the engine running point is in the low load region. In contrast to the claimed invention, Shinzawa discloses that the way of the filter regeneration (rather than the start timing) varies depending on the engine running point (operation range of the engine) as shown in the steps of 1S9, 1S10, 1S11, and 1S12. The ON/OFF state of the heater, closing/opening state of bypass valve and throttle valves are different *ways* used in a regeneration between 1S9, 1S10, 1S11, and 1S12.

Therefore, neither the specific features recited in the independent claims nor its advantages are disclosed or suggested by the applied prior art. Therefore, the pending independent claims 1, 13, and 14 are allowable over the applied prior art.

The dependent claims are also allowable for at least the same reasons as the independent claims on which they ultimately depend. In addition, they recite additional patentable features when considered as a whole.

In particular, dependent claims 5 and 6 (as well as newly added claims 15-18) recite that the (first/second) filter regeneration control is a *balance-point regeneration control* which balances an amount of particulate matter removed from the filter by combustion and an amount of particulate matter newly flowing into the filter as disclosed, for example, in paragraph [0027]. It should be noted that the amount of the deposited particulate matter is *constant* in a balance-point regeneration control.

Shinzawa does not disclose the claimed balance-point regeneration control. Shinzawa only discloses a regeneration control where the amount of the deposited particulate matter is *reduced* to a predetermined value. See step 1S34 of FIG. 8B and col. 11, lines 40-51 of Shinzawa. Likewise, the cited col. 9, lines 25-68 of Shinzawa disclose *reduction* of the particulate matter to a predetermined value and does not disclose the claimed balance-point regeneration control. Therefore, this recited feature provides an additional reason for the patentability of claims 5-6 and 15-18. Furthermore, the office action has already indicated that claim 9 contains allowable subject matter.

In view of the foregoing amendments and remarks, applicants respectfully submit that the application is now in condition for allowance. An early notice to this effect is earnestly solicited. If there are any questions regarding the application, or if an examiner's amendment would facilitate the allowance of one or more of the claims, the examiner is courteously invited to contact the undersigned attorney at the local telephone number below.

Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge deposit account No. 19-0741 for any such fees; and applicants hereby petition for any needed extension of time.

Respectfully submitted,

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